

AMENDMENTS TO THE SPECIFICATION:

Please amend the specification as follows. No new matter has been added.

Please replace paragraph [0011] with the following amended paragraph:

[0011] In order to achieve the above-described objects, the present invention which focuses on impurities of a semiconductor film that serves as a gettering sink, is characterized ~~setting~~ in that nitrogen (N_2) concentration ~~is~~ 1×10^{18} atoms/cm³ or lower, oxygen (O_2) concentration ~~is~~ 8×10^{19} atoms/cm³ or lower in the semiconductor film. Further, the present invention is characterized setting noble gas concentration 1×10^{20} atoms/cm³ or higher so that a semiconductor film as a gettering sink can achieve a desired gettering function. As the noble gas element, one or more elements selected from the group consisting of helium (He), neon (Ne), argon (Ar), krypton (Kr), and xenon (Xe) is/are used.

Please replace paragraph [0016] with the following amended paragraph:

[0016] Note that, one or more elements selected from the group ~~consisting~~ consisting of iron (Fe), nickel (Ni), cobalt (Co), ruthenium (Ru), rhodium (Rh), palladium (Pd), osmium (Os), iridium (Ir), platinum (Pt), copper (Cu), and gold (Au) is/are used for a metal element.

Please replace paragraph [0033] with the following amended paragraph:

[0033] On the side opposite to the substrate holder 101, a target 105 is provided and an electric power is supplied from a high frequency power supply 106. A target lifting means 107 (that can carry up and down the target) having a function of controlling the distance between the substance and the target is provided. A permanent magnet 104 for producing electric ~~field~~ field to the target and a coolant 108 for cooling the target are provided in the vicinity of the target. A current plant 109 for controlling the gas flow is provided and an exhausting means such as a pump is provided via a conductance valve 120. The exhausting means includes a turbo pump 121 is a first exhausting means and a rotary pump or a dry pump 122 that is a second pump. Thereafter, the gases are exhausted through two exhausting systems: a first exhausting systems 134 and a second exhausting system 135. This is because

it is necessary to prevent the flammable gas and the reactive gas from reacting with each other.

Please replace paragraph [0037] with the following amended paragraph:

[0037] In place of monosilane (SiH_4), a gas including any one selected from the group consisting of Si_2H_6 , SiH_2Cl_2 , SiHCl_3 , SiCl_4 , GeH_4 , PH_3 , B_2H_6 , AsH_3 and H_2Se may be supplied. Further, in place of argon (Ar), a gas including any element selected from the group consisting of helium (He), neon (Ne), krypton (Kr), and xenon (Xe).

Please replace paragraph [0042] with the following amended paragraph:

[0042] In this state, the high frequency power supply 106 is operated to apply high frequency to the target. Further, the target is applied with magnetic ~~field~~ field by using the permanent magnet 104 that can move under the target. Thus, a semiconductor film that serves as a gettering sink over the substrate is formed. It is noted that the treatment time is set to 1 to 20 minutes, preferably approximately 5 minutes in this embodiment mode, although it should be set in view of deposition conditions or throughput.

Please replace paragraph [0043] with the following amended paragraph:

[0043] Moreover, the substrate may be applied with magnetic ~~field~~ field by using the magnetic material (magnet) 102. Preferably, a heated argon gas is supplied to the substrate from above the substrate in order to spray the surface to be deposited and the back side (a face not to be deposited) of the substrate. The flow rate of the heated argon gas may be set to approximately 10 to 50 sccm.

Please replace paragraph [0055] with the following amended paragraph:

[0055] In this state, a high frequency power supply 106 is operated to apply high frequency power to the target. Further, the target is applied with magnetic ~~field~~ field by using a permanent magnet 104 that can move under the target. It is noted that, in this embodiment mode, electric power applied to the target (12 square inches in size) is set to from 0.5 to 3 Kw, and preferably, the substrate 140 is heated at temperatures from 25 (the room

temperature) to 300 °C. Thus, a semiconductor film that serves as a gettering sink over the substrate is formed. It is noted that the treatment time is set to 1 to 20 minutes, preferable approximately 5 minutes in this embodiment mode, although it should be set in view of deposition conditions or throughput.

Please replace paragraph [0056] with the following amended paragraph:

[0056] Moreover, the substrate may be applied with magnetic ~~field~~ field by using a magnetic material (magnet) 102. Preferably, a heated argon gas is supplied to the substrate from above the substrate in order to spray the surface to be deposited and the back side (a face not to be deposited) of the substrate. The flow rate of the heated argon gas is set to approximately 10 to 50 sccm.

Please replace paragraph [0064] with the following amended paragraph:

[0064] As shown in Fig. 4A, a base insulating film having a laminated structure of an insulating film such as a silicon oxide film, a silicon nitride film, or a silicon oxynitride film is formed over a substrat 401 having an insulating surface (hereinafter, referred to as an insulating substrate). In this embodiment mode, two-layer structure is employed as the base insulating film. However, a single layer or two-or more-layer structure of the insulating films may be employed. As a first layer 402a of the base insulating film, a silicon oxynitride film is formed to be 10 to 200 nm in thickness (preferably, 50 to 100nm) is formed by using SiH₄, NH₃, N₂O and H₂ as reaction gases by a plasma CVD method. Here, the silicon oxynitride film is formed to have a thickness of 50nm. Then, as a second layer 402b of the base insulating film, a silicon oxynitride film is formed to be 50 to 200 nm in thickness (preferably, 100 to 150nm) is formed by using SiH₄ and N₂O as reaction gases by plasma CVD method. Here, the silicon oxynitride film is formed to have a thickness of 100nm. The base film is provided for the sake of preventing alkaline metal included in the insulating substrate from diffusing into the semiconductor film.

Please replace paragraph [0079] with the following amended paragraph:

[0079] Then, boron is added with into the crystalline semiconductor film (referred to as a channel doping). Thereafter, as shown in Fig. 4C, the crystalline semiconductor film is patterned to have a desired shape as an active layer (406a to 406d).

Please replace paragraph [0080] with the following amended paragraph:

[0080] Subsequently, the surface of the active layer is rinsed with an etchant including hydrofluoric acid and then form a gate insulating film 407 for covering the active layer is formed. The gate insulating film 407 is formed from an insulating film including silicon to be 40 to 150 nm thick by plasma CVD method or a sputtering method. In this embodiment mode, a silicon oxynitride film (composition ratio: Si=32%, O=59%, N=7%, H=2%) is formed with a thickness of 115 nm by a plasma CVD method. It is natural that the gate insulating film should not be limited to an oxynitride film. A single layer having an insulating film made of other film containing silicon or a laminate having insulating films made of other films containing silicon may be employed.

Please replace paragraph [0136] with the following amended paragraph:

[0136] Subsequently, a barrier film is formed over the first crystalline silicon film by applying ozone water using a washing machine. An amorphous silicon film (a second amorphous silicon film) that is to function as a gettering sink is formed to be 50 nm by sputtering. At this time, a pressure of film formation is set 0.4 Pa, a substrate temperature is 150 °C, electric power of film formation is 3 Kw, the size of a target is 12 inches square, a film formation gas is Ar, the flow rate thereof is set 50 sccm, and further, 10 sccm heated Ar is supplied to the vicinity of the substrate.